

REMARKS

Claims 43, 45-65 and 75-86 are pending in this application. Claims 46, 50, 64, 65, 75, 85 and 86 have been amended. No new matter has been added.

Claims 85 and 86 are objected to as being of improper dependent form because they depend from canceled claim 44. Claims 85 and 86 have been amended to depend from pending claim 43.

Claim 46 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. Claim 46 has been amended to include all the limitations of the base claim and any intervening claims.

35 U.S.C. § 112, second paragraph, rejection

Claims 64-65 stand rejected under 35 U.S.C. § 112, second paragraph, for indefiniteness. In the Office Action, it is asserted that there is insufficient antecedent basis for the limitation "host cells."

Claims 64 and 65 have been amended to recite "host cell," in which claim 50 provides antecedent basis.

35 U.S.C. § 101 rejection

Claims 50-63 and 75-84 stand rejected under 35 U.S.C. § 101 for lack of statutory subject matter. In the Office Action, it is asserted that the claims do not point out any non-naturally occurring differences between the claimed products and naturally occurring products. It is suggested that the claims be amended to recite the language "isolated" or "purified."

Applicants respectfully point out that claims 50 and 75 depend from claim 43, and that claim 43 recites "an isolated DNA sequence." Thus, claims 50 and 75 are construed to contain the language "isolated" because as dependent claims they contain all of the language of the claim to which they depend, namely, claim 43. Additionally, claims 50 and 75 have been amended to recite the word "the" in place of the word "a" in front of "DNA sequence."

35 U.S.C. § 112, first paragraph, rejections

Claims 43, 47-65 and 75-86 stand rejected under 35 U.S.C. § 112, first paragraph, for lack of enablement. In the Office Action, it is asserted that, although the specification is enabling for an isolated DNA sequence of SEQ ID NO: 13 encoding an amorpho-4,11-diene

synthase of SEQ ID NO: 14, it does not provide reasonable enablement for a DNA sequence that is 70%, 80%, 90% or 95% identical to SEQ ID NO: 13 which encodes a protein having amorpho-4,11-diene synthase activity or any host tissue or organism transformed with such a DNA. It is further asserted that the specification does not support the broad scope of the claims which further encompass transgenic tissues or microorganisms comprising DNA sequences encoding amorpho-4,11-diene synthase from any source or expression of parts of host cells and/or transformed tissue or organisms which may be a human tissue or human.

Applicants respectfully traverse this rejection and request that the rejection be reconsidered and withdrawn.

First, it should be noted that claims 64 and 65 no longer recite parts of host cells, but rather recite "host cell." More importantly, Applicants respectfully submit that many unknown genes are defined based on homology with genes having a known function, and that one skilled in the art knows that the more homologous an unknown gene is with a known gene, the more likely the unknown gene has a similar function as the known gene.

Corroboration for the above statement can be found in a public database for genes in which the genes exhibit some degree of homology with SEQ ID NO: 13. A copy of the pertinent information contained in the public database is attached hereto as Appendix I. As shown in Appendix I, only four hits were found displaying more than 70% homology with the *A. annua* amorpho-4, 11-diene synthase gene illustrated in Fig. 10 of the specification of the application. The next best hit was the *A. annua* beta-caryophyllene synthase QHS1 gene, which displayed a homology of not more than 18%. Hence, the database search revealed that only sequences with more than 70% homology to SEQ ID NO: 13 relate to the *A. annua* amorpho-4, 11-diene synthase gene of the present invention.

Furthermore, it should be noted that the above database search also revealed that of the many millions of sequences present in the public database, none of the sequences showed more than an overall homology of 18% with the *A. annua* amorpho-4, 11-diene synthase gene of the present invention.

Applicants respectfully submit, therefore, that the actual sequence information available in a public database conclusively supports the definition of the DNA sequences of the

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present invention, namely, DNA sequences which exhibit at least 70% homology to SEQ ID NO: 13.

Claims 75-84 stand rejected under 35 U.S.C. § 112, first paragraph, for lack of written description. In the Office Action, it is asserted that the language "non-human" is not supported in the original disclosure and is requiring that this language be deleted from the claims. Claim 75 has been amended to delete the recitation "non-human."

In view of the foregoing amendments and remarks, it is respectfully submitted that all of the pending claims in the present application comply with the requirements of §§ 101 and 112. Accordingly, reconsideration and withdrawal of the rejection and an early Notice of Allowance are respectfully requested.

Respectfully submitted,

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